

Amendments to the Claims:

This list of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (currently amended): An automatic cold working system comprising:
a machine tool for machining holes in a workpiece;
a cold working mandrel assembly movable in relation to the workpiece;
and

means for automatically aligning a mandrel of the mandrel assembly with the holes of the workpiece and a surface of the workpiece and cold working the holes to create compressive stress zones around the holes.

Claim 2 (original): The automatic cold working system of Claim 1, wherein each hole of the workpiece has a hole vector defined by an axis extending through a center of the hole, the mandrel has a mandrel vector defined by an axis extending longitudinally through a center of the mandrel, and the alignment means aligns the hole vector and the mandrel vector.

Claim 3 (original): The automatic cold working system of Claim 2, wherein the hole vectors are oriented in different directions.

Claim 4 (original): The automatic cold working system of Claim 1, wherein the mandrel assembly comprises a base attached to the mandrel, and the alignment means aligns a surface of the base substantially flush with the surface of the workpiece adjacent to a hole of the workpiece to be cold worked.

Claim 5 (original): The automatic cold working system of Claim 1, wherein the machine tool comprises a drill.

Claim 6 (original): The automatic cold working system of Claim 5, wherein the drill and the mandrel are arranged at an offset distance from each other, the mandrel has a mandrel vector defined by an axis extending longitudinally through a center of the mandrel, the drill has a drill vector defined by an axis extending longitudinally along the length of the drill, and the mandrel vector and drill vector are oriented in substantially the same direction.

Claim 7 (original): The automatic cold working system of Claim 6, wherein the offset distance is from about 4 to about 10 inches.

Claim 8 (original): The automatic cold working system of Claim 1, wherein the aligning means aligns the mandrel assembly against the surface of the workpiece by providing a stop position of the mandrel at an extended distance beyond a first distance at which the base of the mandrel initially contacts the surface of the workpiece.

Claim 9 (original): The automatic cold working system of Claim 8, wherein the extended distance is from about 0.05 to about 0.1 inch.

Claim 10 (original): The automatic cold working system of Claim 8, wherein the extended distance is about 0.075 inch.

Claim 11 (original): The automatic cold working system of Claim 1, wherein the mandrel assembly is mounted on a five-axis head.

Claim 12 (original): The automatic cold working system of Claim 1, wherein the mandrel is a split mandrel.

Claim 13 (original): The automatic cold working system of Claim 1, wherein the machine tool and the cold working mandrel assembly are movable and the workpiece is stationary during the cold working operations.

Claim 14 (original): The automatic cold working system of Claim 1, wherein the alignment means is mounted on a transportable support structure.

Claim 15 (original): The automatic cold working system of Claim 1, wherein the surface of the workpiece is curved.

Claim 16 (original): The automatic cold working system of Claim 1, wherein the workpiece comprises an aircraft component.

Claim 17 (currently amended): A method of automatically cold working holes in a workpiece, the method comprising:

moving a mandrel assembly in relation to the workpiece;

automatically aligning a mandrel of the mandrel assembly with at least one of the holes of the workpiece and a surface of the workpiece adjacent to the at least one hole; and

cold working the at least one hole to form a compressive stress zone around the at least one hole.

Claim 18 (original): The method of Claim 17, wherein each hole of the workpiece has a hole vector defined by an axis extending through a center of the hole, the mandrel has a mandrel vector defined by an axis extending longitudinally through a center of the mandrel, and the hole vector is aligned with the mandrel vector.

Claim 19 (original): The method of Claim 18, wherein the hole vectors are oriented in different directions.

Claim 20 (original): The method of Claim 17, wherein the mandrel assembly comprises a base attached to the mandrel, and a surface of the base is aligned substantially flush with the surface of the workpiece adjacent to a hole of the workpiece to be cold worked.

Claim 21 (original): The method of Claim 17, further comprising providing a machine tool arranged at an offset distance from the mandrel for machining the holes in the workpiece.

Claim 22 (original): The method of Claim 21, wherein the machine tool comprises a drill.

Claim 23 (original): The method of Claim 22, wherein the drill and the mandrel are arranged at an offset distance from each other, the mandrel has a mandrel vector defined by an axis extending longitudinally through a center of the mandrel, the drill has a drill vector defined by an axis extending longitudinally along the length of the drill, and the mandrel vector and drill vector are oriented in substantially the same direction.

Claim 24 (original): The method of Claim 23, wherein the offset distance is from about 4 to about 10 inches.

Claim 25 (original): The method of Claim 17, wherein the mandrel assembly is aligned against the surface of the workpiece by providing a stop position of the mandrel at an extended distance beyond a first distance at which the base of the mandrel initially contacts the surface of the workpiece.

Claim 26 (original): The method of Claim 25, wherein the extended distance is from about 0.05 to about 0.1 inch.

Claim 27 (original): The method of Claim 25, wherein the extended distance is about 0.075 inch.

Claim 28 (original): The method of Claim 17, wherein the mandrel assembly is movable in at least five axes.

Claim 29 (original): The method of Claim 17, wherein the mandrel is a split mandrel.

Claim 30 (original): The method of Claim 17, wherein the surface of the workpiece is curved.

Claim 31 (original): The method of Claim 17, wherein the workpiece comprises an aircraft component.

Claim 32 (new): An automatic cold working system comprising:
a machine tool for machining holes in a workpiece;
a cold working mandrel assembly movable in relation to the workpiece;
and

means for automatically aligning a mandrel of the mandrel assembly with the holes of the workpiece and a surface of the workpiece,

wherein the machine tool and the mandrel are arranged at an offset distance from each other, the mandrel has a mandrel vector defined by an axis extending longitudinally through a center of the mandrel, the machine tool has a machine tool vector defined by an axis extending longitudinally along a length of the machine tool, and the mandrel vector and machine tool vector are oriented in substantially the same direction.

Claim 33 (new): An automatic cold working system comprising:

a machine tool for machining holes in a workpiece;

a cold working mandrel assembly movable in relation to the workpiece;

and

means for automatically aligning a mandrel of the mandrel assembly with the holes of the workpiece and a surface of the workpiece,

wherein the aligning means aligns the mandrel assembly against the surface of the workpiece by providing a stop position of the mandrel at an extended distance of from about 0.05 to about 0.1 inch beyond a first distance at which the base of the mandrel initially contacts the surface of the workpiece.

Claim 34 (new): An automatic cold working system comprising:

a machine tool for machining holes in a workpiece;

a cold working split mandrel assembly movable in relation to the workpiece; and

means for automatically aligning a mandrel of the mandrel assembly with the holes of the workpiece and a surface of the workpiece.

Claim 35 (new): A method of automatically cold working holes in a workpiece, the method comprising:

moving a mandrel assembly in relation to the workpiece;

automatically aligning a mandrel of the mandrel assembly with at least one of the holes of the workpiece and a surface of the workpiece adjacent to the at least one hole;

cold working the at least one hole; and

providing a machine tool arranged at an offset distance from the mandrel for machining the holes in the workpiece.